

The skin having been left upon the toes of the hind-fins, showed the presence of a very small claw on each of the five digits.

I do not consider the modifications of the compressed and deep-cleft molars of sufficient importance to justify the introduction of a new generic name into the group of amphibious or pinnigrade Carnivora, which has already been overburthened. The new species of *Stenorhynchus*, combining a small head and moderately elongated muzzle, with the peculiarly diminutive claws of the genus, renders requisite, however, a slight modification of the generic character.

GENUS STENORHYNCHUS.

Dental formula :—inc. $\frac{2-2}{2-2}$; lan. $\frac{1-1}{1-1}$; mol. $\frac{5-5}{5-5} = 32$.

Molars subcompressed, deeply notched into three or more lobes; anterior molars with one root, the rest with two roots*.

Head small; muzzle more or less elongated.

Claws diminutive.

Sp. 1. *Stenorhynchus leptonyx*, F. Cuv. Molars trilobate, lobes acute; muzzle slender and elongated.

Sp. 2. *Stenorhynchus Weddellii*, Lesson. Molars trilobate, lobes obtuse; muzzle broad and less elongated.

Sp. 3. *Stenorhynchus serridens*, mihi. Molars, three anterior ones 4-lobate, two posterior ones 5-lobate in both jaws, lobes obtuse; muzzle moderately long and slender.

All the species are limited to the Southern Ocean.

XLII.—*On the Species of the Genus Limax occurring in Ireland.*

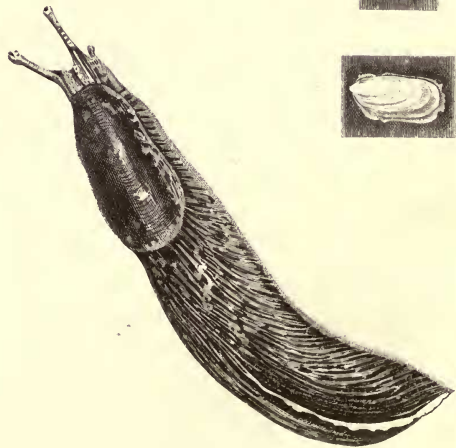
By the Rev. B. J. CLARKE, Mem. of the Dub. Nat. Hist. Soc.

[With three Plates.]

DURING the summer of the year 1840 I supplied Wm. Thompson, Esq., of Belfast, with a list of the species of *Limax* which occurred to me in the Queen's county, for the purpose of introducing them into his 'Catalogue of Irish Land and Freshwater Mollusca,' published in the thirty-sixth Number of the 'Annals and Magazine of Natural History,' and where it appeared as an appendix to his paper. From the limited time allowed me previous to the publication, I had not an opportunity of satisfying myself as to the identity of two species there introduced in a doubtful manner, and which I believed differed materially from any species hitherto described as *British*.

* The translator of Cuvier's 'Règne Animal,' Orr's ed. 1 vol. 8vo, 1840, adds, erroneously, to the generic character of *Stenorhynchus* in the text of the author, "(but with single roots)," p. 98.





Having since that period had abundant opportunities of verifying my former observations, and being fortified by the opinion of naturalists who are more experienced in detecting specific distinctions, I venture now with every confidence to bring them forward as new to the British catalogue. My object in once again noticing the other British species, already known and described, is in order to introduce the new additions in their proper places, and thus afford a greater facility for determining the value of their specific distinctions by comparison.

It is not my intention to include the genus *Arion* in the present communication, as I feel that there are many points, connected with the two species* already described as British, which would require much more attention than I have as yet been enabled to bestow upon them.

In the following catalogue I have adopted the divisional or sectional arrangement made use of by Mr. Gray in his edition of 'Turton's Manual,' but with considerable modifications, rendered necessary in order to include the two new Irish species.

Order PNEUMONOBANCHIATA.

Fam. HELICIDÆ.

Genus LIMAX.

End of tail tapering and destitute of any gland; the pulmonary cavity in front of the body, respiratory hole toward the hinder part of its edge or behind the middle; mantle shield-like, entirely inclosing the shell, which is flat, oval or oblong, without any visible spire. Infra-oesophageal ganglion having two fissures on the under side, presenting on each side of the medial line three gangliform eminences.

* *Mantle produced behind, marked with concentric striæ; tail partially keeled; shell flat.*

1. *Limax maximus*, Linn. (Pl. X. fig. 1, 2.)

L. maculatus, Leach.

L. cinereus, Müller.

L. antiquorum, Féruſſac.

"*L. Cinereus, maculatus et immaculatus, clypeo brevi, corpore striato aut rugoso, apertura laterali subpostica.*"—*Draparnaud.*

This well-known species appears to be universally distributed over Ireland. The varieties as they occur in Ireland are as follows:—

Var. α . Drap. } "Cinereus immaculatus." Co. Galway, B. J. C.
 Var. β . Féruſ. }

* *Arion hortensis* and *A. ater*.

- Var. β . Drap. } "Cinereus, clypeo dorsoq. maculis nigris." Co.
 Var. ζ . Férus. } Cork, R. Ball, Esq.
 Var. γ . Drap. } "Clypeo maculis, dorso fasciis nigris." Queen's
 Var. ν . Férus. } co. and co. Galway, &c., B. J. C. Pl. X. fig. 1.
 Var. Nilsson's? } "Niger, albam carinam." Co. Cork, R. Ball, Esq.;
 Cinereo-niger. } Queen's co., B. J. C. Pl. X. fig. 2.

This latter variety, of which I have given a figure (Pl. X. fig. 2.), is very remarkable. The middle band of the foot and the dorsal keel are white, the rest of the animal shining black, with a few occasional lighter blotches.

The variety which is of most usual occurrence in Ireland is that of var. ν , Férussac. (Pl. X. fig. 1.)

The internal shell (Pl. X. fig. a.) is well described by Dr. Turton.

2. *Limax arboreus*? M. Bouchard Chantreux, Cat. des Moll. terres. et fluv. du Pas de Calais.

L. glaucus, mihi. (Pl. XI. figs. 4 to 10.)

L. Albus flavescens, glauco variegatus, clypeo dorsoque duabus fasciis nigricantibus, tentaculis obscuris.—Clarke.

Hab. On trees which are covered with moss, particularly ash and beech.

This species I at first dubiously referred to the *Limax flavescens* of Férussac in my former communication to Mr. Thompson (see 'Annals and Mag. of Nat. Hist.' vol. vi. p. 204), previous to my seeing M. Bouchard's memoir. I there remarked that this *Limax*, of whose identity I was then doubtful, "might perhaps be referred to *L. arboreus*, on account of its possessing certain characters and habits, differing from what is contained in any description of *L. variegatus* or its varieties; I consequently compared my specimens carefully with M. Bouchard's memoir—an opportunity of doing which was afforded me through the kindness of Messrs. Gray and Thompson—and I was much gratified to find a perfect agreement in the specific characters as well as in the peculiar habits of the animal." Subsequent observation has not altered my opinion as to its identity with this species, but not having seen either a drawing or specimen, I am still under the necessity of referring it to *Limax arboreus* with a mark of doubt attached. Should the species be found eventually to be distinct from *L. arboreus* of Bouchard, I have suggested the name of *Limax glaucus* as descriptive of its very peculiar hue.

I shall now give a more detailed description of the species.

Animal of a gelatinous translucency; colour smooth, bluish gray ("bleu glauque") or neutral tint colour. Back marked with a whitish band, which commences immediately behind the shield, where it is broadest, and gradually diminishes in width until it





meets in a point at the extremity of the tail, which is sensibly keeled. This light dorsal band is bounded on either side by a dark gray coloured fascia, often irregular and interrupted, beneath which the sides are variously mottled or marbled with dark gray, marked more or less with little pale oval spots, which sometimes separate off another but very irregular fascia. This latter character is not however often apparent. The lower part of the sides pale whitish or yellowish.

The *mantle* is rounded anteriorly, and tapers off to a blunt point posteriorly; it is finely and concentrically striated, and marked on either side with a narrow dark-coloured fascia, which is broadest, and usually darkest, immediately over the pulmonary orifice, and narrows off towards the head; each fascia is again narrowly margined with pale yellowish or whitish, the intervening spaces on the back and sides irregularly mottled and marbled with the same dark colour as the fasciæ. The *pulmonary orifice* is situated toward the hinder extremity of the mantle, small, round, and arched over by the dark lateral fascia, which passes in a circular form above it.

The *head* and *tentacles* are grayish with a slight vinous tinge; on each side of the former the blue retractile nerve is seen through the translucent medium of the neck. The upper tentacles are long in proportion to the lower ones. The *sole of the foot* is whitish, the central band somewhat narrower than the side ones, and remarkably translucent.

The *internal shell* (Pl. X. fig. b.) is of an oval form, thin and slightly concave, marked with circular lines as in *Limacella parma*. When just removed from the animal they are translucent, of a membranaceous consistency, but on exposure to the air become of a more opaque white with a silvery lustre above. The marginal membrane is well-defined, and being broadest towards the anterior portion, gives to that part of the shell an appearance of greater width, and is narrowed off towards the apophysis of adhesion.

The young (Pl. XI. figs. 9, 10.) are vinous-coloured; the fasciæ in general are more decidedly marked and better defined than in the adults.

This *Limax* is subject to much variety in the markings, both as to quantity and intensity, but scarcely ever varies in colour; sometimes the light dorsal band is obliterated and the body is of a uniform blue-gray colour, sparingly and irregularly marked with streaks of a darker gray. Not unfrequently the animal is of a uniform glaucous colour without any markings, the situation of the light dorsal band being marked out by a few scattered, oval, whitish spots.

I shall now point out a few of the diagnostic characters by which it is distinguishable from all other British species of *Li-*

max. It agrees with *Limax cinereus* in having the hinder extremity of the mantle produced, but in almost every other respect it will be found to differ materially. First, it is much smaller in size, never attaining that of full-grown specimens of *L. maximus*. Secondly, in colour it likewise differs, possessing the peculiar smooth blue glaucous colour and gelatine translucency which in all its stages and varieties serve to point it out. By the markings on the mantle it is also easily distinguishable from *L. maximus*, as the two fasciæ are almost always more or less apparent, and which I have never seen in any of the varieties of *L. maximus*. Thirdly, the keel is much shorter, and does not exhibit that crenated edge which is so conspicuous in *L. maximus*.

To *Limax flavus* it more nearly approaches in size and general contour, but is somewhat smaller and of a more slender form; it may be however at once distinguished by the form of the termination of the mantle, which, instead of being rounded, as in *L. flavus*, is produced and tapers off to a blunt point: this feature is more apparent when the animal crawls than when it is at rest. In colour and markings it is so widely distinct that I need hardly notice them; the presence of fasciæ and its own peculiar glaucous tint will generally serve to distinguish it; and however nearly it may approach to any of the varieties of *Limax maximus* or *L. flavus* in the markings of the body, there will always remain, even in the palest specimens, sufficient traces of the fasciæ on the mantle to mark the species.

The mucus of *L. arboreus* is colourless, whereas that of *L. flavus* is yellow when thrown into hot water.

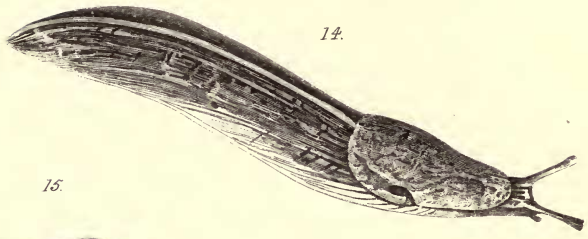
M. Bouchard's description of the habits of this *Limax*—should it prove to be identical with his—agrees in a great measure with my own observations. He observes:—"They live on trees, but prefer those which are old, covered with moss, and of which part of the wood is rotten; when the weather is cloudy or rainy, they are seen crawling upon the trunks or branches." When seen in this position against the light, they present a very interesting and curious appearance on account of their great translucency, which permits their internal organization to be indistinctly traced. "The mucus of this slug is colourless and very abundant; the animal possesses the remarkable property of emitting a clear cold liquid like the purest water when touched." I find this is only to be observed when the animal is first taken in the hand from off the tree, and loses the power of repeating it when kept in confinement. I have attentively watched this phenomenon, and have observed that the liquid is given off from the hinder part of the shield. "They feed themselves with the detritus of the decayed wood and do not touch the leaves, at least of those trees which I have carefully examined, and never found a leaf either



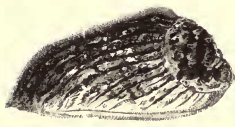
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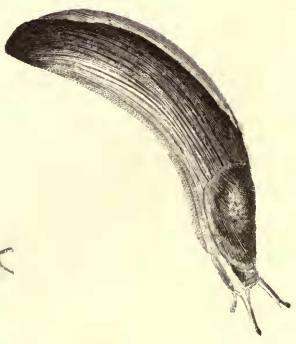
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